FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/04/12
Date Received: 09/27/12
Project: M09566, F&BI 209421
Date Extracted: 09/28/12
Date Analyzed: 09/28/12

RESULTS FROM THE ANALYSIS OF AQUEOUS SAMPLES FOR SPECIFIC GRAVITY @ 15.56 °C

Sample ID Laboratory ID	Specific Gravity
M09566A Lg Tank 209421-01	1.15
M09566B Sm Tank 209421-02	1.13

Note: The third significant digit is an estimate

Date of Report: 10/04/12
Date Received: 09/27/12
Project: M09566, F&BI 209421
Date Extracted: NA
Date Analyzed: 10/01/12

RESULTS FROM THE ANALYSIS OF AQUEOUS SAMPLES FOR PERCENT ACID

Sample ID Laboratory ID	Percent Acid
M09566A Lg Tank 209421-01	10
M09566B Sm Tank 209421-02	8.9

Date of Report: 10/04/12
Date Received: 09/27/12
Project: M09566, F&BI 209421

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AQUEOUS SAMPLES FOR SPECIFIC GRAVITY @ 15.56 °C

Laboratory Code: 209421-01 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Specific Gravity	1.15	1.15	0	0-2

Date of Report: 10/04/12
Date Received: 09/27/12
Project: M09566, F&BI 209421

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF AQUEOUS SAMPLES FOR PERCENT ACID

Laboratory Code: 209421-01 (Duplicate)

Analyte	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Percent Acid	10	9.9	1	0-20

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

AQUATIC RESEARCH INCORPORATED

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**FBI010-56**	**PAGE 1**	
REPORT DATE:	**10/03/12**		
DATE SAMPLED:	**09/27/12**	**DATE RECEIVED:**	**09/28/12**

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM FRIEDMAN & BRUYA, INC. / PROJECT NO. 209421

CASE NARRATIVE

Two water samples were received by the laboratory in good condition and analyzed according to the chain of custody. No difficulties were encountered in the preparation or analysis of these samples. Sample data follows while QA/QC data is contained on the subsequent pages.

SAMPLE DATA

SAMPLE ID	AMMONIA (mg/L)
MO9566A LG TANK	195
MO9566B SM TANK	606

AQUATIC RESEARCH INCORPORATED

LABORATORY & CONSULTING SERVICES

3927 AURORA AVENUE NORTH, SEATTLE, WA 98103

PHONE: (206) 632-2715 FAX: (206) 632-2417

CASE FILE NUMBER:	**FBI010-56**	**PAGE 3**	
REPORT DATE:	**10/03/12**		
DATE SAMPLED:	**09/27/12**	**DATE RECEIVED:**	**09/28/12**

FINAL REPORT, LABORATORY ANALYSIS OF SELECTED PARAMETERS ON WATER SAMPLES FROM FRIEDMAN & BRUYA, INC. / PROJECT NO. 209421

QA/QC DATA

QC PARAMETER	AMMONIA (mg/L)
METHOD	SM184500NH3H
DATE ANALYZED	10/03/12
DETECTION LIMIT	0.010
DUPLICATE	
SAMPLE ID	BATCH
ORIGINAL	<0.010
DUPLICATE	<0.010
RPD	NC
SPIKE SAMPLE	
SAMPLE ID	BATCH
ORIGINAL	<0.010
SPIKED SAMPLE	0.213
SPIKE ADDED	0.200
% RECOVERY	106.52%
QC CHECK	
FOUND	0.317
TRUE	0.324
% RECOVERY	97.77%
BLANK	<0.010

RPD = RELATIVE PERCENT DIFFERENCE.
NA = NOT APPLICABLE OR NOT AVAILABLE.
NC = NOT CALCULABLE DUE TO ONE OR MORE VALUES BEING BELOW THE DETECTION LIMIT.
OR = RECOVERY NOT CALCULABLE DUE TO SPIKE SAMPLE OUT OF RANGE OR SPIKE TOO LOW RELATIVE TO SAMPLE CONCENTRATION.

SUBMITTED BY:

Damien Gadomski
Project Manager

FB1010.56

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 Fax # (206) 283-5044

SUBCONTRACTER Ag. Research

PROJECT NAME/NO.	PO #
209421	B-909

REMARKS

Please Email Results

TURNAROUND TIME

~~Standard (2 Weeks)~~

RUSH 10/3/12

Rush charges authorized by:

SAMPLE DISPOSAL

- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	Dioxins and Furans by 8290	EPH	VPH	Nitrate	Sulfate	Alkalinity	Ammonia				Notes
M09566A Lg Tank		9/27/12	12:30	W	1							X				
M09566B Sm Tank		"	"	"	1							X				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	9/28/12	9:30AM
Received by:		S. NELSON	BKC	9/28/12	1400
Relinquished by:					
Received by:					

AKC-00035500

209421

SAMPLE CHAIN OF CUSTODY ME 09/27/12 AI4

Send Report To: Gerreo Thompson

Company: Alaskan Copper Work

Address: 628 S. Hanford · St

City, State, ZIP: Seattle WA 98134

Phone #: 206-571-6053 Fax #: 206-382-4309

SAMPLERS (signature): [signature]

PROJECT NAME/NO.

PO #

REMARKS

Page # ___ of ___

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☐ RUSH ___

Rush charges authorized by: ___

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by [illegible]	VOCs by [illegible]	SVOCs by [illegible]	HFS	% of Acid	Spec. Gravity	NH4			Notes
M09566A	01	9/27/12	12:30	HNO3	1							X	X	X			
Cg. Tank																	
M09566B	02	9/27/12	12:30	HNO3	1							X	X	X			
Sm. Tank.																	

Friedman & Bruya, Inc.
[illegible] Avenue West
Seattle, WA [illegible]
Ph. [illegible]
Fax [illegible]
FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Gerreo Thompson	ACW	9/27/12	2:40pm
Received by:	[signature]	Michael Erdahl	F&Bi	↓	↓
Relinquished by:					
Received by:					

Samples received at 25 °C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

October 4, 2012

Gerald Thompson, Project Manager
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

Dear Mr. Thompson:

Included are the results from the testing of material submitted on September 27, 2012 from the M09566, F&BI 209421 project. There are 5 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
ACU1004R.DOC